



## APPLICATION FOR PREAPPROVAL

### SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP – 0115-10

Check whether application is: NEW ☒ RENEWAL ☐

1.0 **ABB, Inc.** Timothy Albers  
Manufacturer Manufacturer's Technical Representative

500 W Highway 94, Jefferson City, MO 65101

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E-mail Address

2.0 **Transformer Product Family** Distribution Transformers  
Product Name Product Type

Three Phase Padmounted and Unit Substation Transformers

Product model No (List all unique product identification numbers and/or serial numbers)

General Description: Base mounted three phase, liquid filled distribution transformers, Carbon Steel NEMA 3R construction (without skirt), including padmounted and unit substation product families. Transformer capacities range from 75 kVA through 3,000 kVA including live front, dead front, radial feed and loop feed configurations. Winding materials include copper and aluminum constructions.

3.0 **Tobolski Watkins Engineering, Inc.** Matthew J. Tobolski, PhD., P.E.  
Applicant Company Name Contact Person

3710 Ruffin Road, San Diego, CA 92123

Mailing Address

858-381-5843

Telephone

[mtobolski@tobolskiwatkins.com](mailto:mtobolski@tobolskiwatkins.com)

E-mail Address

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Signature of Applicant

09/22/2010

Date

President and CEO

Title

Tobolski Watkins Engineering, Inc.

Company Name

**Registered Design Professional Preparing the Report**

4.0

**Tobolski Watkins Engineering Inc.**  
*Company Name*

Matthew J. Tobolski, Ph.D, P.E. C 72806  
*Contact Name* *California License Number*

3710 Ruffin Road, San Diego, CA 92123  
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858-381-5843 [dwatkins@tobolskiwatkins.com](mailto:dwatkins@tobolskiwatkins.com)  
*Telephone* *E-mail Address*

**California Licensed Structural Engineer Review and Acceptance of the Report**

5.0

**Tobolski Watkins Engineering Inc.**  
*Company Name*

Derrick A. Watkins, S.E. S 5257  
*Contact Name* *California License Number*

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**Anchorage Pre-Approval**

- 6.0
- ☐ Anchorage is pre-approved under OPA-  
(Separate application for anchorage pre-approval is required)
- ☒ Anchorage is not Pre-approved

**Certification Method**

- 7.0
- ☒ Testing in accordance with: ☒ ICC-ES AC-156 ☐ Other (Please Specify):
- ☐ Analysis
- ☐ Experience data
- ☐ Combination of Testing, Analysis, and/or Experience Data (Please Specify):

**Testing Laboratory (if applicable)**

8.0

**Clark Dynamic Test Laboratory, Inc.** J.R. Antenucci  
*Company Name* *Contact Name*

1801 Route 51 South, Building 8, Jefferson Hills, PA 15025  
*Mailing Address*

412-387-1001 [jrantenucci@clarkdynamic.com](mailto:jrantenucci@clarkdynamic.com)  
*Telephone* *E-mail:*

**Approval Parameters****9.0**Design in accordance with ASCE 7-05 Chapter 13: ☒ Yes ☐ NoDesign Basis of Equipment or Components ( $F_p/W_p$ ) = **0.54g** $S_{DS}$  (Spectral response acceleration at short period) = **2.25g** $a_p$  (In-structure equipment or component amplification factor) = **1.0** $R_p$  (Equipment or component response modification factor) = **2.5** $I_p$  (Importance factor) = **1.5** $z/h$  (Height factor ratio) = **0.0**Equipment or Component fundamental period(s) = **See Attachment**Building period limits (if any) = **None**Overall dimensions and weight (or range thereof) = **See Attachment**Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: ☐ Yes ☒ NoDesign Basis of Equipment or Components ( $V/W$ ) = $S_{DS}$  (Spectral response acceleration at short period) = $S_1$  (Spectral response acceleration at 1 second period) = $R$  (Response modification coefficient) = **1.0** $\Omega_0$  (System overstrength factor) = **1.0** $C_d$  (Deflection amplification factor) = **1.0** $I_p$  (Importance factor) = **1.5**

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) =      Sec

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: ☐ Yes ☒ No**10.0 List of attachments supporting the special seismic certification of equipment or components:**

|   |   |  |
|---|---|--|
| <input checked="" type="checkbox"/> Test Report | <input checked="" type="checkbox"/> Drawings      | <input checked="" type="checkbox"/> Manufacturer's Catalog |
| <input type="checkbox"/> Calculations           | <input type="checkbox"/> Others (Please Specify): |  |

**11.0 OSHPD Approval (For Office Use Only)**

Signature &amp; Date

9/24/10

December 31, 2016

Chris Tokas, SHFR

Name &amp; Title

Approval Expiration Date

 $S_{DS}$  (g) = **2.25**  $z/h$  = **0.0**

Special Seismic Certification Valid Up to

Condition of Approval (if any): **Approval is limited to scope described in Section 2.0 of the application.**

## Attachment A: ABB Transformers Product Matrix

| TABLE 1 - Tested Unit Summary<br>ABB Inc. Distribution Transformers |                                |       |          |                |                               |      |      |
|---|--------------------------------|-------|----------|----------------|-------------------------------|------|------|
| UUT   | Transformer Type Reference     |       |          | Weight<br>(lb) | Lowest Natrual Frequency (Hz) |      |      |
|   | Type                           | KVA   | Windings |                | F-B                           | S-S  | V    |
| 1   | Padmount - Dead Front Radial   | 75    | Aluminum | 2,300          | 26.1                          | 26.9 | > 33 |
| 2   | Padmount - Dead Front Loop     | 3,000 |          | 14,400         | 14.3                          | 25.2 | > 33 |
| 3   | Substation - Live Front Radial | 225   |          | 4,900          | 13.1                          | 14.3 | > 33 |
| 4   | Substation - Live Front Radial | 3,000 | Copper   | 15,900         | 10.3                          | 10.7 | > 33 |

# Attachment A: ABB Transformers Product Matrix

| TABLE 2 - Product Matrix            |                     |     |      |                  |              |
|-------------------------------------|---------------------|-----|------|------------------|--------------|
| ABB Inc. Distribution Transformers  |                     |     |      |                  |              |
| Three Phase Padmounted Transformers |                     |     |      |                  |              |
| Live Front - Radial Feed            |                     |     |      |                  |              |
| KVA                                 | Max Dimensions (in) |     |      | Max Wt.<br>(lbs) | UUT          |
|                                     | H                   | W   | D    |                  |              |
| 75                                  | 56                  | 56  | 44.8 | 2,280            | Interpolated |
| 112                                 | 56                  | 56  | 44.8 | 2,400            |              |
| 150                                 | 56                  | 56  | 44.8 | 2,700            |              |
| 225                                 | 56                  | 56  | 49.8 | 3,350            |              |
| 300                                 | 56                  | 60  | 50.8 | 3,650            |              |
| 500                                 | 60                  | 66  | 58.8 | 5,200            |              |
| 750                                 | 68                  | 81  | 60.8 | 7,100            |              |
| 1,000                               | 68                  | 84  | 62.8 | 7,900            |              |
| 1,500                               | 68                  | 86  | 66.8 | 9,700            |              |
| 2,000                               | 72                  | 96  | 76.8 | 12,800           |              |
| 2,500                               | 72                  | 100 | 78.8 | 14,100           |              |
| 3,000                               | 76                  | 132 | 90   | 20,000           |              |
| Dead Front - Radial Feed            |                     |     |      |                  |              |
| KVA                                 | Max Dimensions (in) |     |      | Max Wt.<br>(lbs) | UUT          |
|                                     | H                   | W   | D    |                  |              |
| 75                                  | 48                  | 62  | 44.8 | 2,350            | 1            |
| 112                                 | 48                  | 62  | 44.8 | 2,450            | Interpolated |
| 150                                 | 48                  | 62  | 44.8 | 2,700            |              |
| 225                                 | 48                  | 62  | 49.8 | 3,400            |              |
| 300                                 | 48                  | 62  | 50.8 | 3,700            |              |
| 500                                 | 56                  | 66  | 58.8 | 5,400            |              |
| 750                                 | 60                  | 81  | 60.8 | 7,100            |              |
| 1,000                               | 68                  | 84  | 62.8 | 7,900            |              |
| 1,500                               | 68                  | 86  | 66.8 | 9,700            |              |
| 2,000                               | 72                  | 96  | 76.8 | 12,800           |              |
| 2,500                               | 72                  | 100 | 78.8 | 14,100           |              |
| 3,000                               | 76                  | 132 | 90   | 20,000           |              |
| Dead Front - Loop Feed              |                     |     |      |                  |              |
| KVA                                 | Max Dimensions (in) |     |      | Max Wt.<br>(lbs) | UUT          |
|                                     | H                   | W   | D    |                  |              |
| 75                                  | 56                  | 66  | 44.8 | 2,400            | Interpolated |
| 112                                 | 56                  | 66  | 44.8 | 2,500            |              |
| 150                                 | 56                  | 66  | 44.8 | 2,800            |              |
| 225                                 | 56                  | 66  | 49.8 | 3,500            |              |
| 300                                 | 56                  | 66  | 50.8 | 3,800            |              |
| 500                                 | 56                  | 68  | 58.8 | 5,600            |              |
| 750                                 | 68                  | 82  | 60.8 | 7,400            |              |
| 1,000                               | 68                  | 86  | 62.8 | 8,200            |              |
| 1,500                               | 68                  | 88  | 66.8 | 10,300           |              |
| 2,000                               | 72                  | 96  | 76.8 | 12,800           |              |
| 2,500                               | 72                  | 100 | 78.8 | 14,100           |              |
| 3,000                               | 76                  | 132 | 90   | 20,000           |              |

## Attachment A: ABB Transformers Product Matrix

| TABLE 3 - Product Matrix                 |                     |    |      |                  |              |
|--|---------------------|----|------|------------------|--------------|
| ABB Inc. Distribution Transformers       |                     |    |      |                  |              |
| Three Phase Unit Substation Transformers |                     |    |      |                  |              |
| Live Front - Radial Feed                 |                     |    |      |                  |              |
| KVA                                      | Max Dimensions (in) |    |      | Max Wt.<br>(lbs) | UUT          |
|  | W                   | H  | D    |                  |              |
| 225                                      | 46                  | 73 | 50.5 | 5,870            | 3            |
| 300                                      | 46                  | 73 | 50.5 | 6,035            | Interpolated |
| 500                                      | 50                  | 73 | 52.2 | 7,192            |              |
| 750                                      | 53                  | 73 | 50.5 | 9,150            |              |
| 1,000                                    | 62                  | 73 | 71   | 10,521           |              |
| 1,500                                    | 66                  | 73 | 67.4 | 12,427           |              |
| 2,000                                    | 69                  | 73 | 67.4 | 15,021           |              |
| 2,500                                    | 69                  | 73 | 93.1 | 17,334           |              |
| 3,000                                    | 69                  | 85 | 93.1 | 19,000           | 4            |

b/1